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Notes:

1. Untranslatable words are replaced with asterisks (***).
2. Texts in the figures are not translated and shown as it is.

Translated: 13:20:40 IST 02/12/2009

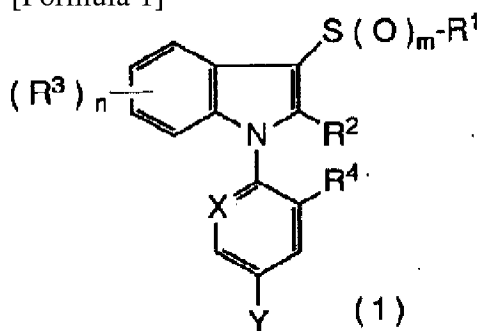
Dictionary: Last updated 12/10/2008 / Priority: 1. Chemistry / 2. Natural sciences / 3. Technical term

CLAIM + DETAILED DESCRIPTION

[Claim(s)]

[Claim 1] General formula (1)

[Formula 1]



Among [type, X show CH, N, or C-halogen atom, and; Y A hydrogen atom, C1-C5 An alkyl group and C2-C5 An alkenyl group and C2-C5 Alkynyl group, An alkoxy group, a halogen atom, a cyano group, a nitro group, and C1-C5 HAROARUKIRU machine, C1-C5 A haloalkoxy machine and C2-C5 A HAROARUKENIRU machine or C2-C5 a HAROARUKINIRU machine is shown --; R1 C1-C5 An alkyl group and C1-C5 A HAROARUKIRU machine and C1-C5 An alkoxy group or C1-C5 A haloalkoxy machine is shown and; R2, R3 and R4 It is a hydrogen atom and C1-C5 independently, respectively. Alkyl group, C2-C5 An alkenyl group and C2-C5 An alkynyl group, a halogen atom, A cyano group, a formyl group, a carboxyl group, an alkoxy carbonyl group, A haloalkoxy carbonyl group, an alkyl carbonyl group, a HAROARU kill carbonyl group, A nitro group, a cyanate group, a thio cyanate group, and C1-C5 A HAROARUKIRU machine and C1-C5 An alkoxy group and C1-C5 A haloalkoxy machine and C2-C5 A HAROARUKENIRU machine or -S(O) kR5 (k showing 0, 1, or 2 here) R5 C1-C5 non-replaced Alkyl or C1-C5 which is the same or is replaced by one or more different halogen atoms alkyl -- being shown -- being shown --; m -- 0 and 1 or -- 2 is shown --; n -- 0, 1, 2, and 3 Or compound expressed with] which shows 4.

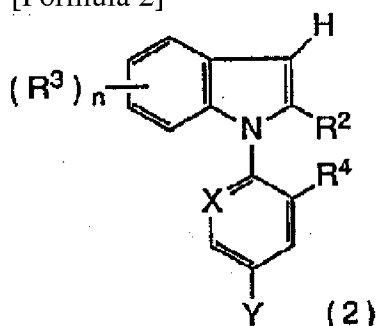
[Claim 2] In a general formula (1), X shows N or C-halogen atom, and; Y is C1-C5.

Alkyl group, C1-C5 A HAROARUKIRU machine, a halogen atom, a cyano group, a nitro group, or C1-C5 a haloalkoxy machine is shown --; R1 C1-C5 An alkyl group and C1-C5 A HAROARUKIRU machine and C1-C5 An alkoxy group or C1-C5 a haloalkoxy machine is shown --; R2 and R3 And R4 It is a hydrogen atom and C1-C5 independently,

respectively. An alkyl group and C2-C5 Alkenyl group, C2-C5 An alkynyl group, a halogen atom, a cyano group, a carboxy group, An alkoxy carbonyl group, a haloalkoxy carbonyl group, an alkyl carbonyl group, A HAROARU kill carbonyl group, a nitro group, and C1-C5 HAROARUKIRU machine, C1-C5 An alkoxy group and C1-C5 A haloalkoxy machine and C2-C5 A HAROARUKENIRU machine is shown;;m shows 0, 1, or 2, and;n is 0, 1, 2, and 3. Or compound according to claim 1 expressed with] which shows 4.

[Claim 3] General formula (2)

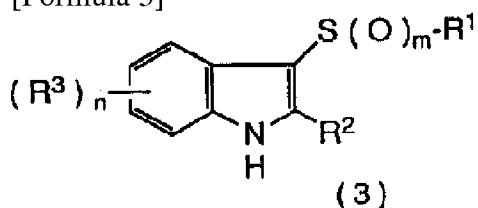
[Formula 2]



It is the compound expressed with [X in a formula, Y, R2-R4, and n have the same meaning as what Claim 1 defined].

[Claim 4] General formula (3)

[Formula 3]



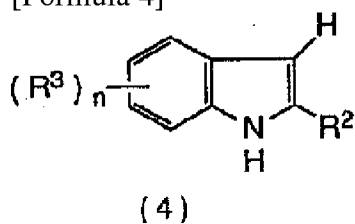
It is the compound expressed with [the inside R1 of a formula, R2, R3 n, and m have the same meaning as what Claim 1 defined].

[Claim 5] The production method of the compound of said general formula (1)

characterized by making the compound expressed with a general formula (2) react under existence of a base as occasion demands in a halogenation sulfinyl R1 S-halogen atom (for the inside of a formula and R1 to be alkyl or HAROARUKIRU), and an organic solvent.

[Claim 6] General formula (4)

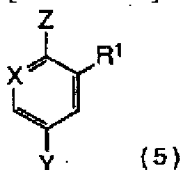
[Formula 4]



It is a halogenation sulfinyl R1 S-halogen atom (among a formula) about the compound expressed with [the inside R2 of a formula, R3, and n have the same meaning as the thing

which Claim 1 defined]. R1 -- alkyl or HAROARUKIRU -- it is -- making the intermediate which is made to react under existence of a base as occasion demands in an organic solvent, and is expressed with a general formula (3) generate -- subsequently -- the bottom of base existence -- a general formula (5)

[Formula 5]



It is the production method of the compound of said general formula (1) characterized by making it react with the compound expressed with [in the inside Z of a formula express halogen and X, Y, and R1 have the same meaning as what Claim 1 defined].

[Claim 7] The insect-killing constituent characterized by containing the new 1-aryl and 1-pyridyl indole derivatives which are expressed with a general formula (1) according to claim 1 as an active principle.

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention can relate to the intermediate for manufacture of the new molecular entity belonging to Indore, and these compounds, and the method for manufacturing these compound and its middle further, and can use this derivative as an insecticide in a paddy field, upland field, an orchard, a forest, or an environmental sanitation scene. Moreover, this derivative can be used as a parasitic controlling agent, in order to protect a man or an animal from parasitic hindrance.

[0002]

[Description of the Prior Art] N displacement Indore which have agricultural-chemicals activity is the United States patent application 3290332nd. Although the number and the Japanese JP,55-151505,A number are described, aryl and a pyridyl machine are not contained as a substituent on a nitrogen atom in this case, and a use is not an insecticide but a germicide.

[0003]

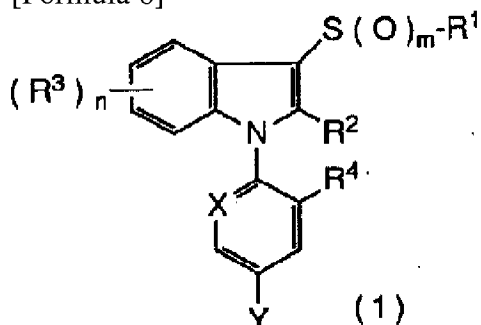
[Problem(s) to be Solved by the Invention] It has the character which does not do damage to higher insect-killing activity and a higher useful insect, and environment in the pest control scene in a paddy field, upland field, an orchard, a forest, or an environmental sanitation scene, and the low toxicity compound is demanded. Moreover, the noxious insect which shows resistance to a pyrethroid agent, well-known insecticide, for example, organophosphorus-compounds Cava mate agent, etc. increases, prevention of the breeding and extermination has become difficult, and these days requires drugs new type. This invention does not do damage to a useful insect and environment substantially, but aims at offering the insect-killing constituent which makes an active principle the intermediate compound for manufacturing the new insecticidal compound of a type which also shows a prominent effect to a drug resistance noxious insect by low toxicity, and them, and it.

[0004]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, as a result of inquiring wholeheartedly, it is a general formula (1).

[0005]

[Formula 6]



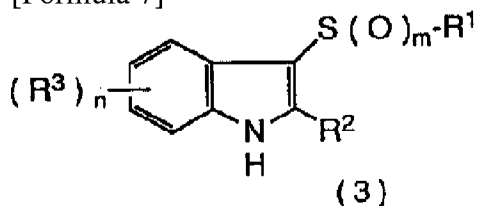
X in [type shows CH, N, or C-halogen atom, and; Y is hydrogen and C1-C5. Alkyl, C2-C5 An alkenyl group and C2-C5 An alkynyl group, an alkoxy group, Halogen, cyano ** nitroglycerine, and C1-C5 HAROARUKIRU and C1-C5 Haloalkoxy, C2-C5 HAROARUKENIRU or C2-C5 HAROARUKENIRU is shown --; R1 alkyl, HAROARUKIRU, and alkoxy **** show haloalkoxy --; R2, R3, and R4 It is hydrogen and C1-C5 independently, respectively. Alkyl and C2-C5 Alkenyl group, C2-C5 An alkynyl group, halogen, cyano ** formyl, carboxyl, Alkoxy carbonyl, haloalkoxy carbonyl, alkyl carbonyl, HAROARU kill carbonyl, nitroglycerine, SHIANATO, thio SHIANATO, and C1-C5 HAROARUKIRU and C1-C5 Alkoxy ** C1-C5 Haloalkoxy and C2-C5 HAROARUKENIRU or -S(O) kR5 (here) k shows 0, and 1 or 2 -- R5 C1-C5 non-replaced Alkyl, or the same or C1-C5 replaced by one or more different halogen atoms alkyl -- being shown -- being shown --; m -- 0 1 or 2 was shown, and; n finds out having the insect-killing activity excellent in the new N displacement indole derivatives expressed with] which shows 0, 1, 2, 3, or 4, and came to complete this research.

[0006] The compound of the general formula (1) of this invention can be manufactured by the following methods.

Method 1 general formula (3)

[0007]

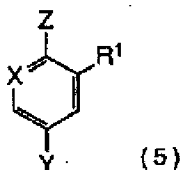
[Formula 7]



R1 in [type-R3, and m and n have the same meaning as the above. The indole derivatives and the general formula (5) which are expressed with]

[0008]

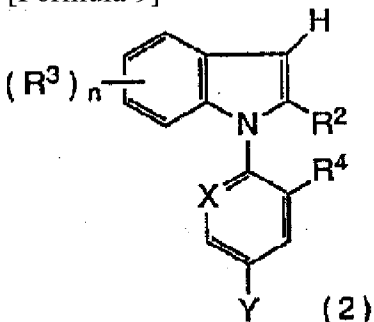
[Formula 8]



In the inside Z of [type, halogen is shown and X, Y, and R1 have the same meaning as the account of this Nakamae.] By reacting a compound under base existence, it is a general formula (2).

[0009]

[Formula 9]

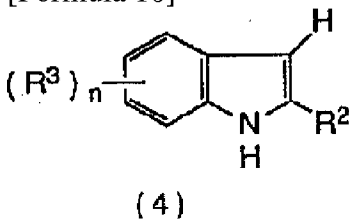


X in [type, Y, R2-R4, and n have the same meaning as the account of this Nakamae. The intermediate of] is prepared and it is prepared by subsequently to the bottom of existence of a base like the third class amine making it react as occasion demands in a halogenation sulfinyl R1 S-halogen atom (for the inside of a formula and R1 to be alkyl or HAROARUKIRU), and an organic solvent.

[0010] Method 2 general formula (4)

[0011]

[Formula 10]



The inside R2 of [type, R3, and n have the same meaning as this above. The indole derivatives and the halogenation sulfinyl R1 S-halogen atom (among a formula) which are expressed with] R1 alkyl or HAROARUKIRU -- it is -- by making it react under existence of a base like the third class amine as occasion demands in an organic solvent, the intermediate expressed with a general formula (3) is prepared, and it is prepared by subsequently reacting the compound of a general formula (5) under base existence. [0012] although the reaction can use the compound of a general formula (4), the compound of a general formula (5), or the compound of a general formula (3) and the compound of a general formula (5) at an arbitrary rate -- desirable -- equimolar -- a ratio - - almost -- equimolar -- it is used by a ratio. As a base, organic bases, such as inorganic bases, such as sodium hydride, potassium hydroxide, and sodium hydroxide, triethylamine, and pyridine, can be used.

[0013] When organic bases, such as triethylamine and pyridine, are used, it can use for an overlarge and can also be used as a solvent. Although the quantity of a base can be used for a stoichiometric amount or an excess, a desirable quantity 1.0 to 5.0 times of a stoichiometric amount are superfluous by that cause is used.

[0014] As a solvent, to a reactant, aliphatic hydrocarbon, such as an inert solvent, for example, hexane, and heptane, Aromatic hydrocarbon, such as benzene, toluene, and xylene, chloroform, Nitrile, such as amide, such as ether, such as halogenated hydrocarbon, such as dichloromethane and chlorobenzene, diethylether, and tetrahydrofuran, and N, N dimethylformamide, acetonitrile, and propionitrile, is mentioned. These mixed solvents and the mixed solvent of these and water can also be used.

[0015] Although a reaction can be performed in the range from -20 degree C to the boiling point of a solvent, it is the range of 0 degree C - 80 degrees C preferably. the reaction mixture at the time of manufacture of the compound of a general formula (1), (2), and (3) is enough -- time churning is carried out and an object is recovered by process, such as the usual after-treatment, for example, extraction, a flush, desiccation, and solvent distilling off. Although it is enough just to carry out easy solvent washing in many cases, if there is necessity, recrystallization or a column chromatography can refine.

[0016] [with the method which mixes an agricultural-chemicals adjuvant in order to remain as it is or to make an effect promotion or stability according to the purpose of use, and is generally performed in the agricultural-chemicals manufacturing field] when using the compound of the general formula (1) of this invention It can be used for the constituent of arbitrary formulation, such as haze agents, such as dust, subtle granules, a granule, a water-dispersible powder, a floable agent, an emulsion, a microcapsule agent, oils, aerosol, heating fumigants (a mosquito coil, electric ****, etc.), and FOKKINGU, a non-heating fumigant, and poison bait, carrying out.

[0017] On the occasion of actual use, these various pharmaceutical preparation can be used as they are directly, or can be diluted and used for the concentration of a request with water. The adjuvant, for example, a spreader, of a carrier (diluent) and others, an emulsifier, a ** exhibition agent, a dispersant, an anchorage, disintegrator, etc. can be raised as an agricultural-chemicals adjuvant said here. As a liquid carrier, aromatic hydrocarbon, such as toluene and xylene, butanol, Ketone, such as alcohols, such as octanol and a glycol, and acetone, Petroleum fractional-distillation things, water, etc., such as kerosene, such as sulfoxide, such as amide, such as dimethylformamide, and dimethyl sulfoxide, methylnaphthalene, cyclohexanone, animal and vegetable oils, fatty acid, and fatty acid ester, and gas oil, are raised.

[0018] As an individual carrier, Clay, kaolin, a talc, diatomaceous earth, silica, calcium carbonate, montmorillonite, bentonite, feldspar, quartz, alumina, saw dust, etc. are raised.

[0019] As an emulsifier or a dispersant, it is usually used by the surface active agent, and Moreover, for example, higher alcohol sodium sulfate, Anion system surface active agents, such as stearyl trimethylammonium chloride, polyoxyethylene alkyl FUENIRU ether, and lauryl betaine, a cation system surface active agent, a non-ion system surface active agent, and a zwitter ion system surface active agent can raise, and it is ****.

Moreover, as a spreader, polyoxyethylene NONIRUFU enyl ether, polyoxyethylene lauryl ether, etc. are raised. as a ** exhibition agent -- polyoxyethylene

NONIRUFUENIRU ether dialkyl -- sulfosuccinate -- ** -- [***** and]

Carboxymethylcellulose, polyvinyl alcohol, etc. are raised as an anchorage and ligninsulfonic acid sodium, sodium lauryl sulfate, etc. are raised as disintegrator.

[0020] As for these this invention compound, it is still more possible to also make the more excellent insecticidal activity discover by two or more sorts of combination use. Moreover, other physiological active substances, for example, allethrin, lid RUSURIN, permethrin, Pyrethroid and various isomers, such as a deca scalpel phosphorus, FUEN valerate, and cyclo pro thorin, Organic phosphorus system insecticides, such as a pyrethrum extract, DDVP, FUENITOROCHION, diazinon, and temephos, The Cava mate system insecticides, such as NAC, MTMC, BPMC, and PIRIMA, By mixing with another insecticide, miticide or germicide, nematicide, herbicide, plants growth regulator, fertilizer, BT agent, and worm-hormone agent, other agricultural chemicals, etc., the multiple-purpose constituent which was further excellent in effect can also be built, and the **** effect can also be expected.

[0021] Furthermore, this effect can also be increased several times by adding what is known, for example as synergists for pyrethroid, such as piperonyl butoxide, a SARUHOKI side, and Saff Loki San. Although this invention compound is extremely stable to light, heat, oxidation, etc., if needed Moreover, an antioxidant Or the constituent where the effect was stabilized more can be obtained by adding suitably arylamines, such as an ultraviolet ray absorbent, for example, phenols like BHTBHA, and alpha-naphthylamine, or benzophenone system compounds as a stabilizer. Although the active principle content in this invention constituent changes with formulation, and the method and other conditions to be used and is good only with an active principle compound depending on the case, it is usually 0.5 to 80% (weight) of range preferably 0.2 to 95% (weight).

[0022] Although the amount of the constituent used of this invention changes according to the conditions of dosage forms, the method of using it, time, and others As for the agent for plantation arts, the agent for forest *****, and the agent for range noxious insects, 15-10-300g 200g are usually preferably used in the amount of active principles per 10a., and the agent for health ***** is usually 1m2. 5-100mg of 2-200mg is preferably used in the amount of hit active principles. For example, as for 15-120g, and a granule, 40-the range of dust of 30-240g and an emulsion, and a water-dispersible powder are [in an active principle] 250g in an active principle per 10a. at an active principle. However, in being special, it is able for the bottom to turn to cross these ranges, and, sometimes, there is even necessity.

[0023] Moreover, when using the compound of the general formula (1) of this invention for prevention of the breeding and extermination of a parasite, it is attached to weight, and it is 0.1-200mg/kg. It can use with a corresponding dose. The exact dose to the state where it was given can be determined daily, and it depends for it on the state of the humans concerning various factors, for example, the substance used, a parasitic kind, the combination used, and a parasite, or an animal.

[0024] The concrete noxious insect name which can apply the insect-killing constituent of this invention is mentioned. From Hemiptera [Hemiptera], for example, Nephrotettix (Nepho-tettix cincticeps), Sogatella furcifera (Sogatellafurcifera), a rice brown planthopper (Nilaparvata luge-ns), A small brown planthopper (Laodelphax striatellus), Riptortus clavatus (Riptortus clavatus), a MINAMIAO bug (Nezaraviridula), pear

Tingidae (Stephanitis nashi), [0025] ONSHITSUKONAJIRAMI (Trialeurodes vaporariorum), An woolly aphid (Aphis gossypii), a green peach aphid (Myzus persicae), A YANOKANE scale insect (Unaspis yanonensis), Phyllonorycter ringoniella (Phyllonorycter ringoneella) from Lepidoptera [Lepidoptera], a cabbage moth (Plutella xylostella), WATAMIGA (Promalactis inonisea) Adoxophyes (Adoxophyes orana), a soybean pod borer (Leguminivora glycinivorella), Cnaphalocrocis medinalis (Cnaphalocrocis medinalis), Chilo (Chilo suppressalis), Ostrinia furnacalis (Ostrinia furnacalis), a cabbage armyworm (Mamestra brassicae), Leucania (Pseudaletia separata), [0026] A tobacco cutworm (Spodoptera litura), rice TSUTOMUSHI (Parnara guttata), A cabbage butterfly (Pieris rapae crucivora), HERIOCHISU (Heliothis spp.), YAGA (Agrotis spp.), From the Coleoptera [Coleoptera], for example, a DOUGANE buoy beetle (Anomala cuprea), A Japanese beetle (Popillia japonica), a rice elephant beetle (Echinocnemus sordidus), a rice Ms. elephant beetle (Lissorhoptrus oryzophilus), [0027] Rice DOROOIMUSHI (Oulema oryzae), a HIMEMARU carpet beetle (Anthrenus verbasci), A cadelle (Tenebroides mauritanicus), A rice weevil (Sitophilus zeamais), NIJUUYAHOSHI ten tows (Henosepilachna vigintioctopunctata), Callosobruchus (Callosobruchus chinensis), Monochamus alternatus (Monochamus alternatus), [0028] Aulacophora femoralis (Aulacophora femoralis), rep chino TARUSA DESEMURINEATA (Leptiontarsa decemlineata), FEDON and substance -- as rare RIAE (Phaedon cochlearius), JIAPUROCHIKA (Diabrotica spp.), and Hymenoptera [Hymenoptera] For example, KABURAHABACHI (Athalia rosae japonensis), As RURICHUURENJIHABACHI (Argesimilis) Diptera [Diptera], for example, NETTAIIEKA (Culex pipiens fatigans), NETTAISHIMAKA (Aedes aegypti), a DAIZUSAYA gall midge (Asphondylia sp.), a seed-corn fly (Hylemya platura), [0029] Housefly (Musca domestica vicina), A melon fruit fly (Dacus cucurbitae), Agromyza oryzae (Agromyza oryzae), As Kyn Valle (Lucilia spp.) Siphonaptera [Siphonaptera], HITONOMI (Pulex irritans), As a KEOBUSU rat flea (Xenopsylla cheopis), a dog flea (Ctenocephalides canis), and the total wing [Thysanoptera] [0030] Scirtothrips dorsalis (Scirtothrips dorsalis), Welsh onion thistle horse (Thrips tabaci) MINAMIKIHO thistle horse (Thrips palmi), They are KOROMOJIRAMI (Pediculus humanus corporis) and a crab (Pulex pubis) as a rice thistle horse (Bliothrips biformis) and Anoplura [Anoplura], for example, [0031] As Corrodentia [Psocoptera], for example KOCHATATE (Trogium pulsatorium), HIRATACHATATE (Liposcelis bostrychophilus), As Orthoptera [Orthoptera], a mole cricket (Gryllotalpa africana), A migratory locust (Locusta migratoria), Oxya japonica (Oxya yezoensis), Blattella germanica (Blattella germanica) Periplaneta fuliginosa (Periplaneta fuliginosa).

[0032] Moreover, although the illness by the most important parasite and the most important it which trouble the humans who can apply the insect-killing constituent of this invention is summarized next, it is not limited to these.

[0033]

Illness Name student Things Bilharziosis and Schistosoma mansoni Schistosomiasis S. Japonicum S. Haematobium (A blood fluke, fluke)

Ancylostomiasis Necator americanus, Ancylostoma duodenale (a hookworm, nematode)

Ascariasis Ascaris lumbricoides (an intestinal worm, nematode)

[0034]

Filariasis or Wuchereria bancrofti Brugia malayi (nematode)

Onchocerciasis -- or -- Onchocerca volvulus (nematode)

Loiasis Loa loa (eye Wuchereria, nematode)

[0035]

[The example of an example] Although a work example is raised to below and this invention is explained to it, these inventions are not these things limited to seeing.

[0036] Synthesis of synthetic example 11-(3-chloro 5-trifluoro methylpyridine 2-IRU)

Indore; Indore 2.00g is dissolved in dimethylformamide 20ml. After adding 0.69g of sodium hydride (60%) and agitating under ice-cooling and a nitrogen air current for 30 minutes, the 2 and 3-dichloro 5-(trifluoromethyl) pyridine 3.70g which dissolved in 4ml of dimethylformamide was dropped under ice-cooling. It heated to 60 degrees C after the end of dropping, and agitated at the temperature for 2.5 hours.

[0037] After returning to a room temperature, it poured underwater, and ethyl acetate extracted. The obtained ethyl acetate layer was washed, and it dried on sulfuric anhydride magnesium, and condensed under the reduced pressure. Column chromatography (a silica gel, eluate:n-hexane / ethyl acetate = 30/1) refined the residue, and 4.85g (95% of yield) of target 1-(3-chloro 5-trifluoro methylpyridine 2-IRU) Indore was obtained. mp 52 to 53 degree C [0038] Synthesis of synthetic example 21-(3-chloro 5-trifluoro methylpyridine 2-IRU)-3-(dichloro fluoro methyl thio) Indore; 1-(3-chloro 5-trifluoro methylpyridine 2-IRU) Indore 1.00g is dissolved in 10ml of methylene chlorides. pyridine 0.26ml -- it adds. Fluoro carbon 21 sulfonyl chloride 1.20g was dropped at the solution under ice-cooling, and it agitated at the room temperature for 4 hours.

[0039] It distilled off under the reduced pressure of a solvent, column chromatography (a silica gel, eluate n-hexane) refined the residue, and 1.38g (95% of yield) of target 1-(3-chloro 5-trifluoro methylpyridine 2-IRU)-3-(dichloro fluoro methyl thio) Indore was obtained. mp 101 to 104 degree C [0040] Synthesis of synthetic example 33-(dichloro fluoro methyl thio)-5-fluoro Indore; 5-fluoro Indore 1.00g is dissolved in a 10ml methylene chloride. pyridine 0.7ml -- after ****, the fluoro carbon 21 sulfonyl chloride 1.5g which dissolved in the 10ml methylene chloride under ice-cooling was dropped, and it reacted at the room temperature for 2 hours. 100ml of ethyl acetate and n hexane 100ml was added, and the hydrochloric acid aqueous solution washed the organic layer once with water further twice 10%.

[0041] After drying the obtained organic layer with sulfuric anhydride magnesium, it distilled off under the reduced pressure of a solvent and 1.8g (91% of yield) of target 3-(dichloro fluoro methyl thio)-5-fluoro Indore was obtained.

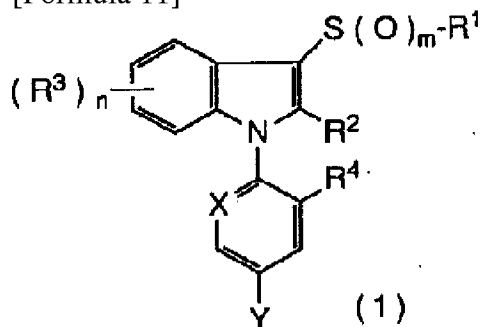
[0042] Synthesis of synthetic example 41-(3-chloro 5-trifluoro methylpyridine 2-IRU)-3-(dichloro fluoro methyl thio)-5-fluoro Indore; 3-(dichloro fluoro methyl thio)-5-fluoro Indore 0.6g is dissolved in dimethylformamide 15ml. After adding 0.1g of sodium hydride (60%) and agitating under ice-cooling and a nitrogen air current for 30 minutes, the 2 and 3-dichloro 5-(trifluoromethyl) pyridine 0.5g which dissolved in 2ml of dimethylformamide was dropped under ice-cooling.

[0043] It heated to 100 degrees C after the end of dropping, and agitated at the temperature for 3 hours. After returning to a room temperature, it poured underwater and 100ml of ethyl acetate and an n hexane 100ml mixed solvent extracted. Hydrochloric acid and water washed the obtained organic layer 10%, and it dried on sulfuric anhydride

magnesium, and condensed under the reduced pressure. a residue -- column chromatography (a silica gel --) Eluate n-hexane / ethyl acetate = it refined by 30/1 and 0.6g (60% of yield) of target 1-(3-chloro 5-trifluoro methylpyridine 2-IRU)-3-(dichloro fluoro methyl thio)-5-fluoro Indore was obtained. 107 to 108 degree C mp [0044] Next, the example of representation of a compound expressed with the general formula (1) concerning this invention is shown in Table 1.

[0045]

[Formula 11]



[0046]

[Table 1]

Table 1-A No. XY m R1R2R3R41 NCF3 0 CCl2 F HHC12 C-Cl CF3 0 CCl2 F H5-Cl
Cl3 NCF3 0 CCl2 F H5-CN Cl4 NCF3 0 CCl2 F H5-FC15 NCF3 0 CCl2 F H5-OMe Cl6
N CF3 0 CCl2 F Me H Cl 7 C-Cl CF3 0 CCl2 F H H Cl 8 C-Cl Cl 0 CCl2 F HHC19 C-Cl
CF3 1 CCl3HHC110 C-Cl CF3 2 CCl3HHC111 NCF3 0 CCl2 F H6-Cl C112 N CF3 0
CCl2 F H 4-Cl C1 13 C-Cl CF3 0 CCl3 H H C1 [0047]

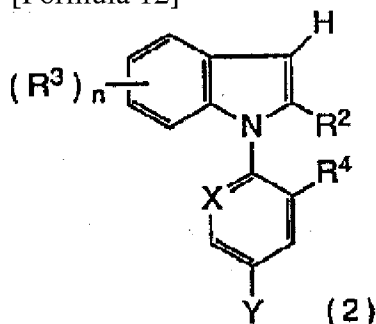
表1-B (表1-Aの横続ぎ)

No.	mp (°C) (屈折率 n_D^{25})
1	101-104
2	95-98
3	127-130
4	107-108
5	132-135
6	92-94
7	(1.5851)
8	
9	
10	
11	
12	
13	

[0048] Next, the example of representation of a compound expressed with the general formula (2) concerning this invention is shown in Table 2.

[0049]

[Formula 12]



[0050]

[Table 2]

Table 2 No. X Y R2 R3 R4 mp (degree C)

(Refractive-index nD25)

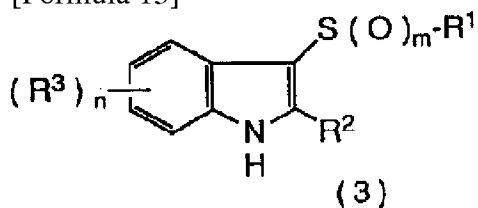
14 C-Cl CF3 H H Cl(1.5851)

15 NCF3HH Cl 52-53 16 C-Cl CF3 H 5-Cl Cl 96-97 17 N CF3 H 5-MeO Cl (1.5763)

18 N CF3 Me H Cl 115-118 [0051] Next, the example of representation of a compound expressed with the general formula (3) concerning this invention is shown in Table 3.

[0052]

[Formula 13]



[0053]

[Table 3]

Table 3 No. m R1R2 R3 mp (degree C) 19 0 CCl2 F H 5-F 20 0 CCl2 F H 5-CN [0054]

Next, an insect-killing constituent is concretely explained using the example of pharmaceutical preparation.

Example of pharmaceutical preparation 1. 65 copies of mixed liquor of xylene methylnaphthalene was added to 20 copies of compounds of the emulsion compound number 1, it dissolved in them, subsequently to this an alkylphenol ethyleneoxide condensate and 15 copies of mixtures (8:2) of alkylbenzene-sulfonic-acid calcium were mixed, and it was considered as the emulsion. This agent is diluted with water and used as a spray.

[0055] Example of pharmaceutical preparation 2. 35 copies of kaolin, 30 copies of Clay, and 7.5 copies of diatomaceous earth were mixed to 20 copies of compounds of the water-dispersible powder compound number 1, 7.5 copies of mixtures (1:1) of RAUEN acid soda and dinaphthyl methansulfonic acid sodium were mixed and pulverized further, and dust was obtained. This agent is diluted with water and used as a spray.

[0056] Example of pharmaceutical preparation 3. After having added 97 copies of mixtures (1:1) of a talc and calcium carbonate to one copy of compound of the dust

compound number 8, carrying out mixed grinding and carrying out distributed combination equally enough, preferential grinding of two copies of silicic anhydrides was added and carried out further, and it was considered as dust. This agent is used sprinkling it as it is.

[0057] It kneads after mixing two copies of compounds of the example of pharmaceutical preparation 4. granule compound number 8 with 48 copies of bentonite impalpable powder, 48 copies of talcs, and two copies of ligninsulfonic acid sodium until it adds water and becomes equal. Next, granulation was carried out through the injection molding machine, and it was considered as the granule with a grain size of 0.6-1mm by letting an oscillator and a dryer screen pass. It is used for them, carrying out granule application of this agent to a direct Mizuta side and a soil side.

[0058] 0.5 copy of piperonyl butoxide was added to 0.1 copy of compound of the example of pharmaceutical preparation 5. oils compound number 1, it dissolved in illuminating kerosine, the whole was made into 100 copies, and oils were obtained. This agent is used as it is. Next, the example of an examination explains concretely the living thing effect of a compound expressed with the general formula (1) concerning this invention.

[0059] The effect over an example of examination 1. cabbage moth (forage dip coating) The 20% water-dispersible powder or 20% emulsion of this invention compound was manufactured according to the examples 1 and 2 of pharmaceutical preparation, and it was considered as sample offering drugs.

Test method: The middle leaf of the cabbage grown to about ten cabbage foliage leaves was cut, and it was immersed in the treatment liquid diluted with water so that the active principle of each sample offering drugs might be set to 200 ppm for 20 seconds. It put into the plastics container of 9cm of diameters after air-drying, and the insects scatter of the ten cabbage moth third instar larvae was carried out. The container was covered with the lid which made 5-6 small holes, and it put gently into the 25-degree C cool room. It processed, four days after carrying out the insects scatter, the number of life-and-death insects was investigated, and mortality was computed. The result was shown in Table 4 by the average of 2 **.

[0060]

[Table 4]

表4

供試化合物	死 虫 率 (%)
1	1 0 0
2	9 0
3	1 0 0
4	1 0 0
5	1 0 0
6	1 0 0
7	1 0 0

[0061] Example of examination 2. The 20% water-dispersible powder or 20% emulsion of the effect this invention compound to a rice brown planthopper was manufactured according to the examples 1 and 2 of pharmaceutical preparation, and it was considered as sample offering drugs.

Test method: Eight rices of three to 4 leaf stage were made into one share, and it was immersed in the treatment liquid diluted with water so that the active principle of each sample offering drugs might be set to 200 ppm for 20 seconds. It put into the glass cylinder 4.5cm in diameter, and 15cm in height after air-drying, the insects scatter of the ten third instar larvae of a rice brown planthopper was carried out to this, the number of life-and-death insects was investigated six days after treatment, and mortality was computed. The result was shown in Table 5 by the average of 2 **.

[0062]

[Table 5]

表 5

供試化合物	死 虫 率 (%)
1	1 0 0
2	1 0 0
3	5 0
4	1 0 0
5	1 0 0
6	1 0 0
7	1 0 0

[0063]

[Effect of the Invention] Since this invention is constituted as the work example was given and explained above, it does so an effect which is indicated below. N displacement indole derivatives of this invention are effective in the pest control scene in a paddy field, upland field, an orchard, a forest, or an environmental sanitation scene.

[Translation done.]